

GRAY VIREO (*Vireo vicinior*)

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Criteria Scores

Population Trend	Range Trend	Population Size	Range Size	Endemism	Population Concentration	Threats
15	15	10	10	0	5	5

Special Concern Priority

Currently considered a bird species of species concern (year round), priority 1. Included on the list since its inception.

Breeding Bird Survey Statistics for California

Data inadequate for trend assessment (Sauer et al. 2000). Ironically, the Breeding Bird Survey's greatest contribution to knowledge of San Diego County birds was Michael U. Evans' rediscovery of the Gray Vireo there in 1977, while he was conducting a Breeding Bird Survey. Results for the vireo from even this single route in the Kitchen Creek area of the Laguna Mountains would be valuable. Field work for the San Diego County bird atlas, 1997-2001, found fewer birds in parts of this region than were present in the late 1970s.

General Range and Abundance

The Gray Vireo breeds in the mountains of southern California, northern Baja California, southern Nevada, southern Utah, Arizona, New Mexico, western and southern Colorado, extreme northwestern Oklahoma, western Texas, northwestern Coahuila, and possibly southwestern Wyoming. It winters in primarily in Baja California Sur and the lowlands of Sonora, in small numbers in the mountains of southern Yuma County, Arizona. Recently it has been discovered wintering in the Big Bend region of Texas and very locally in Baja California (Norte) and the Anza-Borrego Desert of southern California. The Gray Vireo is more numerous east of the Colorado

River than in California, being called “fairly common to common” though “often quite local” in Arizona (Monson and Phillips 1981).

Seasonal Status in California

The Gray Vireo is a summer visitor only to California, except for in a small portion of the Anza-Borrego Desert, where the species winters in very small numbers (Unitt 2000).

Historical Range and Abundance in California

Grinnell and Miller (1944) reported the Gray Vireo as a summer resident in the mountains of the eastern Mojave Desert, in the mountains of eastern Kern County (Bodfish, Walker Pass), and in the Transverse (San Gabriel, San Bernardino, and Little San Bernardino mountains) and Peninsular ranges. They called it “common locally...; in many parts of range to be rated as no more than fairly common.” Nevertheless, the density Grinnell and Swarth (1913) estimated in the San Jacinto Mts., 16 pairs per square mile, is low for a small land bird and suggests that the Gray Vireo may never have been truly common. Weathers (1983) reported one individual per 10 acres (equivalent to 32 pairs per square mile) in Deep Canyon in the Santa Rosa Mts., but the area over which this applies may be very small. In the Providence Mountains of the eastern Mojave Desert, the population density is even lower, only 4 pairs per square mile of suitable habitat (Johnson et al. 1948).

Recent Range and Abundance in California

The range of the Gray Vireo has contracted substantially in California, the species having been extirpated from or become very rare in Kern County, the San Gabriel Mountains (persisting tenuously, at best, on north slope, Garrett and Molina XXXX; only five locations recorded during Los Angeles County bird atlas field work, 1995-1999; L. Allen pers. comm.), the Phelan/Cajon Pass/Hesperia area, Joshua Tree National Monument, and some localities in Riverside and San Diego counties. It still occurs in the Mojave Desert (Panamint, Grapevine, Kingston, Clark, and New York mountains, Mid Hills, Providence Mountains), on the northeastern slopes of the San Bernardino Mountains (regular in the Round Valley/Rose Mine area; Garrett and Molina XXXX),

very locally on the the desert slopes of the San Jacinto and Santa Rosa mountains, and patchily in the mountains of San Diego County. No rangewide survey of the species has been made, but in California it is apparently most numerous in San Diego County, where the population consists of only a few dozen pairs.

In winter, the species is known only from the stand of the elephant tree (*Bursera microphylla*) along and near Alma Wash, south of Ocotillo Wells in Anza-Borrego Desert State Park. Unitt (2000) reported five individuals there in December 1999.

Ecological Requirements

In all parts of the Gray Vireo's range, shrub cover that "forms a continuous zone of twig growth from one to five feet above the ground" (Grinnell and Miller 1944) is the common factor of habitat. The shrubbery may evidently be either closed, as in chaparral, or partly open, as in pinyon/juniper woodland. In the Peninsular Ranges of southern California, the Gray Vireo frequents chaparral dominated by chamise (*Adenostoma fasciculatum*) or redshanks (*A. sparsifolium*). The birds range into scrub oak (*Quercus*), manzanita (*Arctostaphylos*), *Ceanothus*, pinyon, or big sagebrush (*Artemisia tridentata*) where these are mixed with or near *Adenostoma* (Grinnell and Swarth 1913, Weathers 1983). The chaparral is mature or late in postfire succession, as suggested by Grinnell and Swarth's (1913) comment that "a person may follow a bird around for 20 minutes, keeping track of it by its oft-repeated song, without catching a view of it above the level of the chaparral tops." In the Laguna Mountains, Gray Vireos frequent chaparral dominated by chamise and *Ceanothus greggii* (Unitt 1984). In the Transverse Ranges, the habitat is mixed shrubs including big sagebrush, antelope brush, flat-top buckwheat (*Eriogonum fasciculatum*), boxthorn (*Lycium*), silktassel (*Garrya*), scrub oak, manzanita, *Ceanothus*, and *Ephedra*, typically mixed with scattered single-leaf pinyon (*Pinus monophylla*), juniper (*Juniperus californica*), and/or Joshua Tree (*Yucca brevifolia*) (Garrett and Molina XXXX). In Joshua Tree National Monument and the mountains of the eastern Mojave Desert, Gray Vireos occur in pinyon/juniper woodland (Miller and Stebbins

1964) or sagebrush mixed with pinyon/juniper woodland (Johnson et al. 1948). In southern Nevada, Johnson (1972) identified mountain mahogany (*Cercocarpus ledifolius*), Gambel oak (*Quercus gambelii*), Mexican manzanita (*Arctostaphylos pungens*), squaw apple (*Peraphyllum ramosissimum*), and cliffrose (*Cowania stansburyana*) as frequent constituents in addition to pinyon, juniper, and sagebrush.

In the desert, the breeding range of the Gray Vireo appears limited by the density of suitable shrubs. On the coastal side, the limiting factor is unclear but may be related to atmospheric humidity. The areas where the vireos breed are rarely if ever touched by coastal morning low clouds. In any case, vast areas of chamise chaparral in southern California were never occupied. With the distribution now reduced to scattered patches within the suitable habitat, ecological modeling of the factors affecting the Gray Vireo is impaired.

In winter, the Gray Vireo is closely associated with the elephant tree (*Bursera microphylla*), the bird as a seed disperser and plant as a food source possibly being linked in mutual dependence (Bates 1992). It was only through a targeted search of California's largest stand of the elephant tree that the Gray Vireo was found as a wintering bird in the state (Unitt 2000). Stands of the elephant tree away from Alma Wash, the single site where the vireos were found, are probably too small to support the vireo, and searches of those near Indian Valley and Mountain Palm Springs in 1999-2000 revealed none.

Threats

Remsen (1978) was able to suggest only cowbird parasitism as a reason for the Gray Vireo's decline in California. Other factors remain unknown, but the parallel of the Gray with the decline of other vireos in southern California implies that cowbirds are the primary cause, a species with a naturally low population level being especially susceptible. Friedmann (1963) considered the Gray Vireo a frequent victim of the Brown-headed Cowbird, though he listed few actual records, from Cajon Pass (Hanna 1944), near Hesperia, and Sheep Creek Canyon in the San Gabriel Mountains.

The Gray Vireo is not known to persist at any of these localities. Much of the species' habitat in southern California is within national forests, but further development of inholdings could enhance habitat for the cowbird and increase parasitism of the vireo on public land.

Improper fire management could affect the Gray Vireo adversely. Too-frequent fire that keeps chaparral low and open likely disfavors the Gray Vireo. Conversely, fire suppression that leads to fuel buildup and catastrophic large-scale fires is likely negative too. A massive fire like the one that swept southern San Diego County in October 1970 (and originated near the center of the current population in that region) could disrupt the small remaining population seriously.

Management and Research Recommendations

- Investigate the fire ecology of the Gray Vireo: conservation measures for the species should take into account the seral stages of chaparral preferred and tolerated by the birds.
Controlled burns or fire regulation in the vireo's habitat may be part of a management strategy.
- Assess current cowbird-parasitism rates and/or test the effects of cowbird trapping on the Gray Vireo. The localization and separation of the current Gray Vireo populations in San Diego County into two main blocks (Indian Flats and Kitchen Creek) lends itself to an experiment. A few cowbird traps could be set and run around one of these two populations for a few years and the vireos in both monitored (every two or three years would probably suffice) so that the value of cowbird trapping to them, if any, could be quantified with respect to a control group.
- If such efforts reveal significant parasitism, initiate widespread trapping.
- Protect Gray Vireo habitat from excessive human recreational pressures, including off-road vehicles and target shooting.

Monitoring Needs

Because much of the species' habitat has not been visited by birdwatchers or ornithologists, a survey to assess its current distribution and status is needed as a first step. Recent bird-atlas projects in Los Angeles and San Diego counties have clarified the Gray Vireo's distribution there, so San Bernardino and Riverside counties should be given first priority in such a survey. Once a detailed map of the bird's distribution has been generated, it can be compared with detailed maps of fire history, to yield information on its response to fire. When the most important populations are identified, regular monitoring can be carried out easily, as the birds are easily detected by their persistent song.

Acknowledgments

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